LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

By

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Abstract

The Highway Safety Manual developed methodologies for consistently predicting accident rates that are useful in any location. These predictive accident rates can be adjusted to more closely match the reported accident rates in local areas by calculation of a calibration factor.

In order to develop a calibration factor for four-leg stop-controlled intersections in Alaska, a sample of over 200 intersections was selected for analysis. From this sample, two groups of intersections meeting the criteria of four-leg stop-controlled intersections were selected. Information regarding site conditions, reported accident rates and physical characteristics was collected for each of the intersections included in the two study groups. A calibration factor for each group was calculated in accordance with Chapter 12 of the Highway Safety Manual.

The findings of this report were calibration factors of 2.60 for the group of 22 intersections, and 2.34 for the group of 48 intersections. These values are far above the assumed calibration factor of 1.0 proving that calibration is necessary for accurate accident prediction rates when using the Highway Safety Manual.

This report investigated the calibration factor for a single type of roadway facility in Alaska. However it can be inferred from the wide disparity between the assumed Highway Safety Manual calibration factor and the calculated calibration factors in this report that calibration factors should be calculated for each type of intersection and roadway element when using the Highway Safety Manual's predictive methods.

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Introduction

The purpose of this study is to determine a calibration factor for four-leg stop-controlled intersections in Alaska. This calibration will be developed with and for use with the predictive accident rate model outlined in Chapter 12 of the Highway Safety Manual. The procedure for developing the calibration factor is discussed in the Highway Safety Manual in Appendix A of Volume 2.

The ability to measure and predict roadway safety is an important component of local agency and community efforts to maintain and enhance road safety. Historically there have been a number of tools developed to help owners monitor and evaluate the safety of their roads. However, these tools were not developed as a national standard or utilized across the United States.

The Highway Safety Manual (HSM) was developed to quantitatively evaluate the different features of roadways. It was developed and published by the American Association of State Highway and Transportation Officials (AASHTO) to provide a national standard for evaluating highway features. Since being published in 2010, the methods advocated by the HSM have proven useful across the United States. However, some areas of the United States have features and characteristics that are notably different from the locations where the models were developed. The varying conditions across regions logically will produce different results when applying HSM techniques. The authors of the HSM anticipated different predictive results due to regional variations and included a technique to adjust the HSM computations to align the HSM predicted values with the values observed in different areas. The HSM describes a method for defining a calibration factor (CF) that when multiplied with the

predictive results of an HSM analysis, would provide a calibrated predictive accident rate close to the observed accident rate.

Once a local calibration factor has been established from past accident data, the calibration factor can be used to forecast the accident rate for sites and facilities in the future based on future traffic volumes. The forecasting of accident rates allows planners and engineers to compare the benefits of different proposed improvements to roadway features and determine if the cost of future improvements is justified by the projected change in the accident rate at that location.

Alaska is different from other states within the United States in many ways related to driving conditions. The climate of Alaska is typically colder with more snow and ice than most of the lower 48 states. Winters are longer and darker than the rest of the country because of the northern latitude. The 200,000 moose in Alaska are common to northern climates around the world, but not in most of the United States. These animals are a significant hazard because of their size and are capable of disabling an auto and injuring the occupants.

The weather, darkness and moose contribute to the accident rate in Alaska. Snow and ice affect a vehicle’s ability to slow and stop as well as navigate curves and avoid hazards. Visibility is reduced in the dark winter months making it difficult for drivers to avoid hazards on the roadway. The winter darkness and weather last for months longer than most of the northern states in the continental U.S. Every year hundreds of Moose are involved in accidents with motor vehicles in Alaska. The dark color of the moose's coat makes them difficult to see, especially against a background of spruce and birch trees. The behavior of moose contributes to accidents because

unlike most animals, moose don't appear to wait for gaps in traffic or have an awareness of moving vehicles.

Not all of Alaska's unusual features can be attributed to its northern latitude. Like every geographic area in the United States, Alaska has developed its own unique culture that is influenced by its climate, location, history, and the people who live here.

One characteristic that separates Alaskans from the rest of the United States is the age of its population. The median age of Alaska residents was 33.3 years in 2015, while across the United States the median age was 37.8 years. Logically the median age of drivers is likely lower in Alaska. How does the relatively younger age of Alaskans affect the accident rate?

People living in Alaska are more likely to carpool than most Americans with 12.6% participating, compared to 9% of the United States population. Would driving alone in a vehicle decrease or increase the chance that a driver will be involved in a crash?

Although the age and carpooling habits of Alaskans are easily discovered, as are the ages and carpooling habits of Americans as a whole, other characteristics of Alaska driving that may contribute to the accident rate are not. For example, how often do Alaskans come to a complete stop at stop signs compared to Americans as a whole? Do drivers in the lower 48 pass on the right shoulder to get past a left turning vehicle as often as drivers in Alaska? There is any number of factors that might contribute to the accident rate in Alaska, but gathering all of the information and keeping the data current would be expensive and time consuming.

A simple way to calibrate the predicted accident rate in Alaska to the HSM's predictive model is to compare the observed (reported) accident rate in Alaska to the HSM predicted rate. This approach would incorporate all of the characteristics of Alaska driving, whether or not they have been identified and quantified, that contribute to the local accident rate.

Literature Review

In the early 1900's, as the fledgling auto industry began to fill roads around the world with automobiles, engineers begin to study accidents in order to reduce the rate of accidents. In 2010 the Highway Safety Manual (HSM) was published with the goal of providing quantitative information for decision making regarding roadway safety (AASHTO 2010). The HSM gave agencies the ability to predict the accident rate at sites based on the site characteristics such as Annual Average Daily Traffic (AADT), lane width, lighting, turn lanes, the number of lanes and other properties, which the HSM uses to calculate safety performance factors (SPFs) and select crash modification factors (CMFs) to generate predicted accident frequencies. Knowing the factors that contributed to accidents allowed agencies to evaluate the potential benefit of changing the road characteristics on road segments and intersections.

However the authors of the Highway Safety Manual realized that the SPFs and CMFs developed for the HSM would not accurately predict accident rates in all locations due to differences in climate, driver populations, animal populations, crash reporting thresholds and crash reporting procedures. To address the variations and allow agencies to apply the HSM method more accurately, the HSM authors included a method to calibrate the HSM predictive model for local conditions.

Studies have been completed across the world to calibrate the Highway Safety Manual procedure to local conditions. In a study to calibrate the HSM for the State of Missouri, the comparison of predicted vs. actual accident rates generally verified the HSM values (Sun, 2014), but recommended developing SPFs for selected site types in Missouri. A notable finding of the Missouri study was the much lower recorded accident rate for three and four leg unsignalized intersections, 0.77 and 0.49, respectively, compared to the HSM predicted rate.

When the predictive method of the HSM was applied in Oregon (Xie, 2011), the calibration factor was found to be less 1.0, indicating that the HSM values were above the actual accident rates. The researchers believed that Oregon's accident reporting threshold, which is higher than many states, may have reduced the number of accidents reported and resulted in the HSM predicting a higher accident rate than the reported accident rate.

As with the development of the calibration factors for Missouri and Oregon, the calibration factors for unsignalized intersections in Maryland were found to be below 1.0, indicating that the Highway Safety Manual predicted more accidents at intersections than were recorded. Maryland developed calibration factors for six different types of unsignalized intersections with calibration factors ranging from a low of 0.1562 up to 0.3824. The researchers believe several factors contributed to the low calibration factors. One factor the authors of the study discussed was the requirement in Maryland to only report accidents that resulted in an injury. Accidents that resulted in property damage, but not injuries, are not reported and so Maryland collects accident counts lower than most states by excluding a large proportion of accidents. Additionally

the Maryland study excluded accidents in the Baltimore area, which is one of few large metropolitan areas in Maryland.

Methodology

Appendix A of the Highway Safety Manual outlines the calibration procedure for the predictive methods described in Chapters 10, 11 and 12 of the HSM. The methodology for this project consisted of five steps: identify facility type, select sites for calibration, obtain data, apply predictive method and compute calibration factor. Descriptions of each step are discussed below.

Identify Facility Type

Calibration factors must be calculated for each facility type in Chapters 10, 11 and 12 of the Highway Safety Manual before they are used to analyze future accident rates. For this study we have chose to calibrate the predictive accident rate described in Chapter 12 of the HSM for four-leg stop-controlled intersections. To develop a calibration factor for four-leg stop-controlled intersections in Alaska, a random sample of approximately 200 intersections in Alaska was used.

Select Sites for Calibration

To develop a calibration factor for four-leg stop-controlled intersections in Alaska, a random sample of intersections in Alaska was selected. The accident information available was provided through the State of Alaska's accident data base. The data provided with each intersection included:

- Intersection Identifying Number
- Dates of beginning and ending of accident data

- Names of intersecting roads
- Intersection type
- Classification of accidents (PDO, minor injury, major injury, fatality), and a total accident count for the period

In order to determine the suitability of the sample intersections for analysis of four-leg stop-controlled intersections, the intersections were located and inspected using Google Earth. Intersections To be eligible for this study, intersections were required to have four legs, stop control on both minor approaches, unsignalized, and have available traffic counts. Each of the 255 intersections considered for this study were located and information collected regarding number of legs, stop control, and signalization. From the original list of 255 candidate intersections a total of 85 intersections were found to meet the required physical characteristics of four legs, stop control on minor approaches and unsignalized. The information required for determination of a calibration factor was organized on a calibration table. The calibration table is included in the appendix.

Obtain Data

Once our sample list had been narrowed to the intersections that met the project criteria for four-leg stop-controlled intersections, it was possible to revisit each site using Google Earth to determine the physical information necessary for developing the predictive accident rate of each of the intersections. Certain physical characteristics of each intersection, the skew angle of the intersecting roads, the number of approaches with left turn lanes on the major road, the number of right turn lanes on the major road, and whether lighting was present, would be used to calculate Crash Modification

Factors for each intersection. The information collected was included in the Calibration table for this report included in the appendix.

Collection of traffic counts (AADTs) was performed using several sources. The AADTs for state owned roads in our sample were drawn from the "Central Region Traffic Report 2008-2009-2010", the "Central Region Traffic Report 2010-2011-2012", the "Northern Region Annual Traffic Volume Report, Volume I, 2011" and the "Northern Region Annual Traffic Volume Report, Volume I, 2013". A good source for traffic counts for Municipality of Anchorage owned roads was the Municipality of Anchorage's Traffic Data Management System. Data, including 24 hour traffic counts, are available for most of the intersections within the Municipality. Unfortunately, the Municipality of Anchorage does not develop Annual Average Daily Traffic (AADT) counts for individual roads as part of their intersection reports.

For roads in the Matanuska-Susitna Borough, this report relied on traffic count data sets on the Borough's website. The Borough publishes traffic data for local roads from 2007 through 2015.

Traffic data for the Kenai Peninsula Borough is not collected on Borough roads. The city and borough of Kodiak also doesn't collect traffic data. For this reason, only state owned roads in the Kenai Peninsula Borough and Kodiak Borough had AADTs available for our study.

Each of the sources for traffic data has some shortcomings for use in the Highway Safety Manual's procedure for developing calibration factors. The State of Alaska's data did not have AADTs for every road for every year in the study period. The accident data used in this study is for the period 2008 to 2012. However, this is likely a

small concern to the validity of the predictive accident rate since the Highway Safety Manual includes guidelines to address individual traffic data omissions.

The traffic data from the Municipality of Anchorage was generally within the time period 2008 to 2012. The Municipality doesn't perform traffic counts every year on every intersection in their jurisdiction. For consistency, traffic counts from the year 2010 were used whenever possible. When data from a 2010 count was unavailable, a count from the year closest to 2010 was chosen for this report. Unfortunately the Municipality doesn't convert their traffic counts to AADTs. For the purposes of this study we will use their one day counts of intersections as AADTs.

The traffic data from the Matanuska-Susitna Borough was used for four roads. Counts were available for 2011 or 2012 for each of these roads. Unfortunately the Borough collects Average Daily Traffic counts, and does not seasonally adjust them to create AADTs. However since this was the only information available, the ADT counts were used to calculate the predictive accident rates for this study. As previously discussed concerning the Municipality of Anchorage's lack of AADTs, adjusting the data for the purpose of this study was considered unwise.

The traffic data collected is shown in the calibration table included in the appendix of this report.

Apply Predictive Method

As described in chapter 12 of the Highway Safety Manual, the predictive method for urban and suburban arterials is an 18-step procedure used to calculate a predictive average crash frequency, $N_{predicted\ int.}$ Using the data collected on each of the

intersections in our sample group, predicted accident rates were calculated. The data used and results are contained in tables in the Appendix.

However, in order to calculate a calibration factor, not all of the 18 steps were necessary. The steps relating to application of the Empirical Bayes (EB) Method, 13 and 15, were not appropriate for developing a calibration factor. Step 17, for the evaluation of alternatives, was also inappropriate for this study since our predicted accident rates were developed for existing conditions.

For roads in Anchorage where AADTs were not available, the 24 hour traffic counts available through the Traffic Data Management System were used. Since there is not a universally accepted technique for estimating AADT from a 24 hour count, using the raw 24 hour counts for this report is more likely reproducible in the future. If AADTs were estimated using an improvised adjustment in this report, a future analysis of Alaska intersections may estimate AADTs using another technique.

At this point, the data was separated into two groups for analysis. One group contained 22 intersections that the Alaska Dept. of Transportation had identified as having at least one road as an urban arterial. The entire group of 48 intersections for which data was available was also analyzed as a sample group using the Chapter 12 procedures. Although seven intersections of this group contained some roads that were identified by Alaska DOT&PF as rural, the characteristics of the 48 intersections as a whole were similar to the group of 22 urban intersections.

Compute Calibration Factor

To develop a calibration factor for four-leg stop-controlled intersections in Alaska, the observed accident total for the sample group is divided by the predicted accident total. The calibration factor for intersections is denoted as Ci.

C_i = ∑observed crashes / ∑predicted crashes

For our study, a calibration factor was calculated for a group of 22 urban and suburban arterials. A calibration factor was also calculated for the 48 intersections from our sample group for which data was available. The group of 48 intersections included the 22 urban and suburban arterial intersections.

Results

This study found the calibration factor, CF, for the 22 urban and suburban intersections was 2.60. Our group of 22 intersections had 430 observed accidents and a predicted accident total of 165.41.

The predicted accident total for our sample of 48 four-way stop-controlled intersections was 265.90 accidents. The observed accident total was 621 accidents. For this group of intersections, the calibration factor is 2.34.

There is a notable difference in the calculated calibration factor for the two groups of intersections. The Highway Safety Manual recommends sample sizes of 30 to 50 when using the predictive method. The group of 22 intersections is well below the number recommended in the HSM, while the group of 48 is at the upper limit of the recommended sample size. Probably due to the small sample size, the group of 22 intersections also did not meet the recommended average number of observed crashes per year. HSM recommends using groups of intersections that have at least 100 reported accidents each year. With 430 observed crashes in the period 2008 to 2012,

the group of 22 intersections averaged only 86 accidents/year. For the time period 2008 to 2012, the larger sample of 48 had 621accidents for an average of 124 accidents each year.

Conclusions

The Highway Safety Manual is a tool to predict accidents rates across a sample of four-way stop-controlled intersections in Alaska. However in the course of this study it became clear that a calibration factor developed for Alaska is necessary. Although this study only investigated one type of facility, four-leg stop-controlled arterials, it is apparent that a significant difference between predicted and observed accident rates will be found for roadway segments and other intersection types not addressed in this study.

The difference in calibration factor values found between our 22 and 48 intersection groups is significant. From a review of the data and results it is possible to make some observations related to the study outcomes.

The location of the intersections may contribute to the predicted accident rate. Intersections in the group of 22 were primarily located in the Municipality of Anchorage with only three intersections in the group located outside of the Municipality. For the larger group of 48 intersections, which included all 22 intersections from the smaller group, there were 14 intersections included in the group that were located outside of the Municipality of Anchorage. It may be that accident reporting is more accurate within the Municipality and contributes to the larger calibration factor for the group of 22 intersections.

Recommendations

The calibration factors derived from this project indicates that the Highway Safety Manual should only be used to predict accident rates after a calibration factor has been developed for the facility type to be analyzed. Based on the results of this study, a calibration of the HSM predictive model for Alaska conditions should be applied to four-way stop-controlled intersections.

From the results of this study, there appears to be a significant difference in the calibration factor for intersections in Anchorage when compared to intersections across south central Alaska. A separate calibration factor developed for Anchorage intersections would generate more accurate predictive accident rates.

It would also appear that a comparison of similar studies of Alaska predictive accident rates based on the HSM would be appropriate. If the calibration factors derived in the different studies are relatively close, the calibration factors will be validated. However, if the calibration factors are found to disagree, an investigation of the cause of the difference should be done.

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Appendix A - INTERSECTION DATA
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

STREET1	STREET2	INT TYPE	INT NO	TYPE	INT Type	INT NO	PDO	AVG ACC PER YR	MOA Traffic Report	MOA Traffic Report	Year	AK DOT MAJ GIS	AK DOT MIN GIS	Matsu or Kenai Borough	Year	AADT Street 1	AADT Street 2	Intersection Skew Angle	Number of Approaches with left turn lanes	Number of Approaches with Right turn Lanes	Lighting	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK N	20B	20	B			12	3.2				3759	3018		2008	3620	3460	25	1	0	Present	no ground view available
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH END							3.2				3759			2009	3990	3812		1	0	Present	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH END							3.2							2010	4090	3910		1	0	Present	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH END							3.2							2011	4100	3920		1	0	Present	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH END							3.2							2012	2768	3880		1	0	Present	
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE	20B	20	B			9	2.2				8777	7135.5		2008	9800	7600	20	2	2	Present	no ground view available
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE	20B	20	B			9	2.2							2009	12102	9005		2	2	Present	
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE	20B	20	B			9	2.2							2010	12410	9240		2	2	Present	
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE	20B	20	B			9	2.2							2011	12450	9270		2	2	Present	
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE	20B	20	B			9	2.2							2012	10793	8827		2	2	Present	
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	20B	20	B			4	1.4				8506	582		2008	713	6410	10	2	0	Present	
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	20B	20	B			4	1.4							2009	713	6800		2	0	Present	
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	20B	20	B			4	1.4							2010	713	6128		2	0	Present	
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	20B	20	B			4	1.4							2011	611	8022		2	0	Present	
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	20B	20	B			4	1.4							2012	680	8030		2	0	Present	
STERLING HIGHWAY	FOREST LANE ROAD * S	06B	6	B			7	1.8				9157.5	392		2008	11220	300	10	0	0	None	
STERLING HIGHWAY	FOREST LANE ROAD * S	06B	6	B			7	1.8							2009	11720	650		0	0	None	
STERLING HIGHWAY	FOREST LANE ROAD * S	06B	6	B			7	1.8							2010	10344	670		0	0	None	
STERLING HIGHWAY	FOREST LANE ROAD * S	06B	6	B			7	1.8							2011	10230	650		0	0	None	
STERLING HIGHWAY	FOREST LANE ROAD * S	06B	6	B			7	1.8							2012	10240	391		0	0	None	
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	20B	20	B			0	0.4				3613	1357		2008	760	3150	15	0	0	Present	
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	20B	20	B			0	0.4							2009	1170	3170		0	0	Present	
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	20B	20	B			0	0.4							2010	1200	3457		0	0	Present	
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	20B	20	B			0	0.4							2011	1180	3400		0	0	Present	
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	20B	20	B			0	0.4							2012	1353	3270		0	0	Present	
PIONEER AVENUE * HOM	MAIN STREET * HOMER	20B	20	B			7	1.8				5731	2432		2008	7620	2350	30	2	0	Present	
PIONEER AVENUE * HOM	MAIN STREET * HOMER	20B	20	B			7	1.8							2009	7396	2380		2	0	Present	
PIONEER AVENUE * HOM	MAIN STREET * HOMER	20B	20	B			7	1.8							2010	7460	2135		2	0	Present	
PIONEER AVENUE * HOM	MAIN STREET * HOMER	20B	20	B			7	1.8							2011	7410	2130		2	0	Present	
PIONEER AVENUE * HOM	MAIN STREET * HOMER	20B	20	B			7	1.8							2012	7360	2130		2	0	Present	
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	20B	20	B			9	2.6				4272	2798		2008	2060	2780	0	2	0	Present	
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	20B	20	B			9	2.6							2009	2110	2850		2	0	Present	
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	20B	20	B			9	2.6							2010	2470	3382		2	0	Present	
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	20B	20	B			9	2.6							2011	2490	3410		2	0	Present	
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	20B	20	B			9	2.6							2012	2520	3460		2	0	Present	
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	20B	20	B			4	1.4		902	2008	8236	Our		2008	8567	-	0	0	0	Present	
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	20B	20	B			4	1.4							2009	8690	-		0	0	Present	
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	20B	20	B			4	1.4							2010	8045	-		0	0	Present	
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	20B	20	B			4	1.4							2011	8255	-		0	0	Present	
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	20B	20	B			4	1.4							2012	7630	-		0	0	Present	
DENALI STREET (TUDOR	34TH AVENUE (DENALI)	06A	6	A			30	8.4	2772	11291	2011	12870	34th		2008	13175	-	0	2	0	Present	
DENALI STREET (TUDOR	35th AVENUE (DENALI)	06A	6	A			30	8.4							2009	12790	-		2	0	Present	
DENALI STREET (TUDOR	36th AVENUE (DENALI)	06A	6	A			30	8.4							2010	11928	-		2	0	Present	
DENALI STREET (TUDOR	37th AVENUE (DENALI)	06A	6	A			30	8.4							2011	12141	-		2	0	Present	
DENALI STREET (TUDOR	38th AVENUE (DENALI)	06A	6	A			30	8.4							2012	12740	-		2	0	Present	
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	06B	6	B			8	2.2		939	2009	6946	Cange		2008	6870	-	0	2	1	Present	
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	06B	6	B			8	2.2							2009	6503	-		2	1	Present	
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	06B	6	B			8	2.2							2010	6675	-		2	1	Present	
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	06B	6	B			8	2.2							2011	6780	-		2	1	Present	
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	06B	6	B			8	2.2							2012	6270	-		2	1	Present	
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	20B	20	B			7	3.2	124	1420		9787	1147		2008	8567	-	0	2	0	Present	

Appendix A - INTERSECTION DATA
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STREET1	STREET2	INT TYPE	INT NO	TYPE	INT Type	INT NO	PDO	AVG ACC PER YR	MOA Traffic Report	MOA Traffic Report	Year	AK DOT MAJ GIS	AK DOT MIN GIS	Matsu or Kenai Borough	Year	AADT Street 1	AADT Street 2	Intersection Skew Angle	Number of Approaches with left turn lanes	Number of Approaches with Right turn Lanes	Lighting	
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	20B	20	B			7	3.2							2009	8690	-		2	0	Present	
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	20B	20	B			7	3.2							2010	8045	-		2	0	Present	
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	20B	20	B			7	3.2							2011	8255	-		2	0	Present	
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	20B	20	B			7	3.2							2012	7630	-		2	0	Present	
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	20B	20	B			4	1		580	2008	6539	Main Tree		2008	6228	-	0	0	0	None	
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	20B	20	B			4	1							2009	6980	-		0	0	None	
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	20B	20	B			4	1							2010	7020	-		0	0	None	
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	20B	20	B			4	1							2011	7600	-		0	0	None	
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	20B	20	B			4	1							2012	6576	-		0	0	None	
BLACKBERRY STREET ANCHORAGE	DIMOND BOULEVARD	20B	20	B			10	4		1981	2011	14781	ackberry		2008	19806		0	2	0	Present	
BLACKBERRY STREET ANCHORAGE	DIMOND BOULEVARD	20B	20	B			10	4							2009	20835			2	0	Present	
BLACKBERRY STREET ANCHORAGE	DIMOND BOULEVARD	20B	20	B			10	4							2010	19043			2	0	Present	
BLACKBERRY STREET ANCHORAGE	DIMOND BOULEVARD	20B	20	B			10	4							2011	19404			2	0	Present	
BLACKBERRY STREET ANCHORAGE	DIMOND BOULEVARD	20B	20	B			10	4							2012	18950			2	0	Present	
88TH AVENUE WEST * A	BLACKBERRY STREET (P	20C	20	C			14	3.2	6057	3504	2011	3264	ackberry		2008	4965	-	0	0	0	Present	
88th AVENUE WEST * A	BLACKBERRY STREET (P	20C	20	C			14	3.2							2009	4253	-		0	0	Present	
88th AVENUE WEST * A	BLACKBERRY STREET (P	20C	20	C			14	3.2							2010	3576	-		0	0	Present	
88st AVENUE WEST * A	BLACKBERRY STREET (P	20C	20	C			14	3.2							2011	3837	-		0	0	Present	
88nd AVENUE WEST * A	BLACKBERRY STREET (P	20C	20	C			14	3.2							2012	3895	-		0	0	Present	
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	06B	6	B			2	0.4	1557	3152	2007	2120	ackberry		2008	2290	-	0	0	0	Present	
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	06B	6	B			2	0.4							2009	1896	-		0	0	Present	
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	06B	6	B			2	0.4							2010	2103	-		0	0	Present	
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	06B	6	B			2	0.4							2011	2020	-		0	0	Present	
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	06B	6	B			2	0.4							2012	2289	-		0	0	Present	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	20B	20	B			10	2.4		1167	2011	14315	sentry		2008	13137	-	0	2	0	Present	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	20B	20	B			10	2.4							2009	14021	-		2	0	Present	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	20B	20	B			10	2.4							2010	10701	-		2	0	Present	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	20B	20	B			10	2.4							2011	14272	-		2	0	Present	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	20B	20	B			10	2.4							2012	13887	-		2	0	Present	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	20C	20	C			1	0.2	2741	4587	2010	2664	1685		2008	2680	1180	0	0	0	Present	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	20C	20	C			1	0.2							2009	2720	2086		0	0	Present	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	20C	20	C			1	0.2							2010	1458	2428		0	0	Present	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	20C	20	C			1	0.2							2011	1467	2106		0	0	Present	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	20C	20	C			1	0.2							2012	1681	2342		0	0	Present	
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	20B	20	B			7	2.2		2803	2011	12233	84th		2008	12379	-	0	2	0	Present	
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	20B	20	B			7	2.2							2009	13124	-		2	0	Present	
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	20B	20	B			7	2.2							2010	11714	-		2	0	Present	
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	20B	20	B			7	2.2							2011	11885	-		2	0	Present	
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	20B	20	B			7	2.2							2012	11959	-		2	0	Present	
RASPBERRY ROAD * ANC	SAND LAKE ROAD	20B	20	B			4	1				5574.5	4877		2008	9191	3669	0	1	0	Present	
RASPBERRY ROAD * ANC	SAND LAKE ROAD	20B	20	B			4	1							2009	9972	4198		1	0	Present	
RASPBERRY ROAD * ANC	SAND LAKE ROAD	20B	20	B			4	1							2010	9530	4409		1	0	Present	
RASPBERRY ROAD * ANC	SAND LAKE ROAD	20B	20	B			4	1							2011	10131	4689		1	0	Present	
RASPBERRY ROAD * ANC	SAND LAKE ROAD	20B	20	B			4	1							2012	10577	4302		1	0	Present	
88TH AVENUE WEST * A	ARLENE STREET (DIMON	20C	20	C			12	2.8				6383	4078		2008	4965	6520	0	2	0	Present	
88th AVENUE WEST * A	ARLENE STREET (DIMON	20C	20	C			12	2.8							2009	4253	7363		2	0	Present	
88th AVENUE WEST * A	ARLENE STREET (DIMON	20C	20	C			12	2.8							2010	3576	7038		2	0	Present	
88th AVENUE WEST * A	ARLENE STREET (DIMON	20C	20	C			12	2.8							2011	3837	6623		2	0	Present	
88th AVENUE WEST * A	ARLENE STREET (DIMON	20C	20	C			12	2.8							2012	3895	6288		2	0	Present	
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	06B	6	B			2	0.8		1537	2013 speed	7925	Caravelle		2008	9191	-	0	0	0	Present	
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	06B	6	B			2	0.8							2009	9972	-		0	0	Present	
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	06B	6	B			2	0.8							2010	9530	-		0	0	Present	

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STREET1	STREET2	INT TYPE	INT NO	TYPE	INT Type	INT NO	PDO	AVG ACC PER YR	MOA Traffic Report	MOA Traffic Report	Year	AK DOT MAJ GIS	AK DOT MIN GIS	Matsu or Kenai Borough	Year	AADT Street 1	AADT Street 2	Intersection Skew Angle	Number of Approaches with left turn lanes	Number of Approaches with Right turn Lanes	Lighting	
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	06B	6	B			2	0.8							2011	10131	-		0	0	Present	
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	06B	6	B			2	0.8							2012	10577	-		0	0	Present	
TUDOR ROAD	LOIS DRIVE ANCHORAG	20B	20	B			1	1	6462	1843	2005	n/a	n/a		2008	-	-	20	0	0	None	
TUDOR ROAD	LOIS DRIVE ANCHORAG	20B	20	B			1	1							2009	-	-		0	0	None	
TUDOR ROAD	LOIS DRIVE ANCHORAG	20B	20	B			1	1							2010	-	-		0	0	None	
TUDOR ROAD	LOIS DRIVE ANCHORAG	20B	20	B			1	1							2011	-	-		0	0	None	
TUDOR ROAD	LOIS DRIVE ANCHORAG	20B	20	B			1	1							2012	-	-		0	0	None	
MCCARREY/PINE STREET	6TH AVENUE (BRAGAW)	20B	20	B			11	3.2	6694	1667	2013	4951	6th		2008	3990	-	0	0	0	Present	
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	20B	20	B			11	3.2							2009	3281	-		0	0	Present	
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	20B	20	B			11	3.2							2010	4266	-		0	0	Present	
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	20B	20	B			11	3.2							2011	3649	-		0	0	Present	
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	20B	20	B			11	3.2							2012	3400	-		0	0	Present	
BONIFACE PARKWAY	CARIBOU AVENUE ANCHOR/	20B	20	B			21	7		5575	2011	22877	3162		2008	23047	-	0	2	0	Present	
BONIFACE PARKWAY	CARIBOU AVENUE ANCHOR/	20B	20	B			21	7							2009	19790	-		2	0	Present	
BONIFACE PARKWAY	CARIBOU AVENUE ANCHOR/	20B	20	B			21	7							2010	23536	-		2	0	Present	
BONIFACE PARKWAY	CARIBOU AVENUE ANCHOR/	20B	20	B			21	7							2011	21011	-		2	0	Present	
BONIFACE PARKWAY	CARIBOU AVENUE ANCHOR/	20B	20	B			21	7							2012	19872	-		2	0	Present	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	20B	20	B			54	15		1519	2011	15620	16th		2008	14883	-	0	0	0	Present	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	20B	20	B			54	15							2009	18407	-		0	0	Present	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	20B	20	B			54	15							2010	17728	-		0	0	Present	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	20B	20	B			54	15							2011	18378	-		0	0	Present	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	20B	20	B			54	15							2012	16850	-		0	0	Present	
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	20B	20	B			8	2		2917	2012	4527	hompson		2008	2614	-	0	0	0	None	
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	20B	20					2							2009	2921	-		0	0	None	
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	20B	20					2							2010	2870	-		0	0	None	
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	20B	20					2							2011	3000	-		0	0	None	
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	20B	20					2							2012	3673	-		0	0	None	
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	20B	20	B			25	8.4	16922	1499	2011	11862	tonwood		2008	15980	-	0	0	0	Present	
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	20B	20	B			25	8.4							2009	16381	-		0	0	Present	
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	20B	20	B			25	8.4							2010	17246	-		0	0	Present	
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	20B	20	B			25	8.4							2011	17250	-		0	0	Present	
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	20B	20	B			25	8.4							2012	17150	-		0	0	Present	
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	20C	20	C			5	1.2	1664	2535	2014	n/a	n/a		2008	-	-	0	0	0	Present	
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	20C	20	C			5	1.2							2009	-	-		0	0	Present	
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	20C	20	C			5	1.2							2010	-	-		0	0	Present	
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	20C	20	C			5	1.2							2011	-	-		0	0	Present	
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	20C	20	C			5	1.2							2012	-	-		0	0	Present	
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	20C	20	C			6	1.4	3961	2024	2014	n/a	n/a		2008	-	-	0	0	0	None	
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	20C	20	C			6	1.4	3961	2024	2014	n/a	n/a		2009	-	-		0	0	None	
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	20C	20	C			6	1.4	3961	2024	2014	n/a	n/a		2010	-	-		0	0	None	
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	20C	20	C			6	1.4	3961	2024	2014	n/a	n/a		2011	-	-		0	0	None	
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	20C	20	C			6	1.4	3961	2024	2014	n/a	n/a		2012	-	-		0	0	None	
42ND AVENUE * ANCHOR	DALE STREET	20C	20	C			4	0.8	3166	2757	2010	n/a	n/a		2008	-	-	0	0	0	Present	
42ND AVENUE * ANCHOR	DALE STREET	20C	20	C			4	0.8							2009	-	-		0	0	Present	
42ND AVENUE * ANCHOR	DALE STREET	20C	20	C			4	0.8							2010	-	-		0	0	Present	
42ND AVENUE * ANCHOR	DALE STREET	20C	20	C			4	0.8							2011	-	-		0	0	Present	
42ND AVENUE * ANCHOR	DALE STREET	20C	20	C			4	0.8							2012	-	-		0	0	Present	
DENALI STREET ANCHO	40TH AVENUE ANCHORA	06B	6	B			14	4.2			2009	8198	1570		2008	7863	-	0	0	0	Present	
DENALI STREET ANCHO	40TH AVENUE ANCHORA	06B	6	B			14	4.2			2009				2009	8640	-		0	0	Present	
DENALI STREET ANCHO	40TH AVENUE ANCHORA	06B	6	B			14	4.2			2009				2010	8415	-		0	0	Present	
DENALI STREET ANCHO	40TH AVENUE ANCHORA	06B	6	B			14	4.2							2011	7676	-		0	0	Present	
DENALI STREET ANCHO	40TH AVENUE ANCHORA	06B	6	B			14	4.2							2012	7973	-		0	0	Present	

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STREET1	STREET2	INT TYPE	INT NO	TYPE	INT Type	INT NO	PDO	AVG ACC PER YR	MOA Traffic Report	MOA Traffic Report	Year	AK DOT MAJ GIS	AK DOT MIN GIS	Matsu or Kenai Borough	Year	AADT Street 1	AADT Street 2	Intersection Skew Angle	Number of Approaches with left turn lanes	Number of Approaches with Right turn Lanes	Lighting	
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	20B	20	B			3	1				2674.5	2121		2008	3140	2047	0	0	0	Present	
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	20B	20	B			3	1							2009	3425	1553		0	0	Present	
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	20B	20	B			3	1							2010	2388	1920		0	0	Present	
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	20B	20	B			3	1							2011	3461	2067		0	0	Present	
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	20B	20	B			3	1							2012	3362	2024		0	0	Present	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	20B	20	B			7	2.4				4295	1266		2008	4505	2068	0	2	0	Present	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	20B	20	B			7	2.4							2009	4881	1338		2	0	Present	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	20B	20	B			7	2.4							2010	4438	1757		2	0	Present	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	20B	20	B			7	2.4							2011	4355	1677		2	0	Present	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	20B	20	B			7	2.4							2012	4199	1594		2	0	Present	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	06B	6	B			19	5	12591	1914	2009	20397	olumbine		2008	24143	-	0	2	0	Present	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	06B	6	B			19	5							2009	22907	-		2	0	Present	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	06B	6	B			19	5							2010	22506	-		2	0	Present	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	06B	6	B			19	5							2011	20828	-		2	0	Present	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	06B	6	B			19	5							2012	20193	-		2	0	Present	
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	06B	6	B			16	5.4		2485	2009	20397	orthway		2008	24143	-	0	2	0	Present	
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	06B	6	B			16	5.4							2009	22907	-		2	0	Present	
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	06B	6	B			16	5.4							2010	22506	-		2	0	Present	
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	06B	6	B			16	5.4							2011	20828	-		2	0	Present	
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	06B	6	B			16	5.4							2012	20193	-		2	0	Present	
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DE	20B	20	B			11	4.4			2003	15414	2008		2008	18040	-	0	2	0	Present	
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DE	20B	20	B			11	4.4							2009	17994	-		2	0	Present	
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DE	20B	20	B			11	4.4							2010	18092	-		2	0	Present	
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DE	20B	20	B			11	4.4							2011	18290	-		2	0	Present	
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DE	20B	20	B			11	4.4							2012	16706	-		2	0	Present	
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	08B	8	B			6	1.2		1133	2010	4275	F St.		2008	2960	-	0	0	0	Present	
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	08B	8	B			6	1.2							2009	3238	-		0	0	Present	
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	08B	8	B			6	1.2							2010	2982	-		0	0	Present	
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	08B	8	B			6	1.2							2011	3559	-		0	0	Present	
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	08B	8	B			6	1.2							2012	2905	-		0	0	Present	
E STREET ANCHORAGE	10TH AVENUE ANCHORA	20B	20	B			5	1.2		2115	2009	3159	10th		2008	3781	-	0	0	0	Present	
E STREET ANCHORAGE	10TH AVENUE ANCHORA	20B	20	B			5	1.2							2009	3504	-		0	0	Present	
E STREET ANCHORAGE	10TH AVENUE ANCHORA	20B	20	B			5	1.2							2010	3823	-		0	0	Present	
E STREET ANCHORAGE	10TH AVENUE ANCHORA	20B	20	B			5	1.2							2011	3843	-		0	0	Present	
E STREET ANCHORAGE	10TH AVENUE ANCHORA	20B	20	B			5	1.2							2012	3765	-		0	0	Present	
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	20B	20	B			6	1.6		1064	2008	12118	VcKenzie		2008	12130	-	0	2	1	Present	
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	20B	20	B			6	1.6							2009	11980	-		2	1	Present	
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	20B	20	B			6	1.6							2010	12053	-		2	1	Present	
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	20B	20	B			6	1.6							2011	11880	-		2	1	Present	
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	20B	20	B			6	1.6							2012	11740	-		2	1	Present	
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	20B	20	B			3	1.6				3520	927		2008	3552	995	0	0	0	None	
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	20B	20	B			3	1.6							2009	3417	1097		0	0	None	
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	20B	20	B			3	1.6							2010	3018	981		0	0	None	
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	20B	20	B			3	1.6							2011	3288	980		0	0	None	
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	20B	20	B			3	1.6							2012	4853	1068		0	0	None	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	20B	20	B			0	0.2			2012	8458	Airport	926	2008	8547	-	0	2	0	Present	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	20B	20	B			0	0.2							2009	8500	-		2	0	Present	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	20B	20	B			0	0.2							2010	8204	-		2	0	Present	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	20B	20	B			0	0.2							2011	9153	-		2	0	Present	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	20B	20	B			0	0.2							2012	9591	-		2	0	Present	
OLD GLENN @ PALMER	VALLEY WAY * PALMER	06B	6	B			1	0.6				10042	893		2008	10783	1241	15	2	0	Present	
OLD GLENN @ PALMER	VALLEY WAY * PALMER	06B	6	B			1	0.6							2009	10510	1210		2	0	Present	

Appendix A - INTERSECTION DATA

LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

STREET1	STREET2	INT TYPE	INT NO	TYPE	INT Type	INT NO	PDO	AVG ACC PER YR	MOA Traffic Report	MOA Traffic Report	Year	AK DOT MAJ GIS	AK DOT MIN GIS	Matsu or Kenai Borough	Year	AADT Street 1	AADT Street 2	Intersection Skew Angle	Number of Approaches with left turn lanes	Number of Approaches with Right turn Lanes	Lighting	
OLD GLENN @ PALMER	VALLEY WAY * PALMER	06B	6	B			1	0.6							2010	10420	1044		2	0	Present	
OLD GLENN @ PALMER	VALLEY WAY * PALMER	06B	6	B			1	0.6							2011	11637	1040		2	0	Present	
OLD GLENN @ PALMER	VALLEY WAY * PALMER	06B	6	B			1	0.6							2012	1219	1060		2	0	Present	
PARKS HIGHWAY	STANLEY ROAD	06B	6	B			4	1.4			2011	19435	Stanley	959	2008	19187	-	15	0	0	None	
PARKS HIGHWAY	STANLEY ROAD	06B	6	B			4	1.4							2009	19187	-		0	0	None	
PARKS HIGHWAY	STANLEY ROAD	06B	6	B			4	1.4							2010	19203	-		0	0	None	
PARKS HIGHWAY	STANLEY ROAD	06B	6	B			4	1.4							2011	18288	-		0	0	None	
PARKS HIGHWAY	STANLEY ROAD	06B	6	B			4	1.4							2012	18730	-		0	0	None	
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	20B	20	B			1	0.2				1718.5	945.5		2008	1735	320	0	2	0	Present	
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	20B	20	B			1	0.2							2009	1535	285		2	0	Present	
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	20B	20	B			1	0.2							2010	1690	335		2	0	Present	
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	20B	20	B			1	0.2							2011	1535	300		2	0	Present	
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	20B	20	B			1	0.2							2012	1585	310		2	0	Present	
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	20B	20	B			4	1.2	-			2540	864		2008	3995	695	0	0	0	None	
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	20B	20	B			4	1.2							2009	2480	695		0	0	None	
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	20B	20	B			4	1.2							2010	4030	695		0	0	None	
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	20B	20	B			4	1.2							2011	3795	695		0	0	None	
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	20B	20	B			4	1.2							2012	4080	695		0	0	None	
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	20B	20	B			3	1.6				1269	1162.5	1159	2008	1460	1158	5	0	0	Present	
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	20B	20	B			3	1.6							2009	1420	1158		0	0	Present	
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	20B	20	B			3	1.6							2010	1430	1170		0	0	Present	
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	20B	20	B			3	1.6							2011	1440	1180		0	0	Present	
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	20B	20	B			3	1.6							2012	1266	1220		0	0	Present	
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	06B	6	B			8	2.2			2011	11088	Sunset	1474	2008	7820	-	30	0	0	Present	
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	06B	6	B			8	2.2							2009	8153	-		0	0	Present	
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	06B	6	B			8	2.2							2010	8210	-		0	0	Present	
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	06B	6	B			8	2.2							2011	10649	-		0	0	Present	
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	06B	6	B			8	2.2							2012	10973	-		0	0	Present	
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	06B	6	B			10	2.2			2011	2352	Johnson	673	2008	1743	-	0	0	0	None	Johnson slightly offset from i
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	06B	6	B			10	2.2							2009	1760	-		0	0	None	
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	06B	6	B			10	2.2							2010	1770	-		0	0	None	
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	06B	6	B			10	2.2							2011	1818	-		0	0	None	
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	06B	6	B			10	2.2							2012	1900	-		0	0	None	

APPENDIX B - 22 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2008	3620	3460	0.87	0.19	1.06	1	0.73	0	1.00	Present	0.91	0.70	0.02	0.01	0.73	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2009	3990	3812	0.96	0.20	1.16	1	0.73	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2010	4090	3910	0.99	0.20	1.19	1	0.73	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2011	4100	3920	0.99	0.20	1.19	1	0.73	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2012	2768	3880	0.72	0.18	0.89	1	0.73	0	1.00	Present	0.91	0.59	0.01	0.01	0.62	3.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2008	9800	7600	2.39	0.29	2.68	2	0.53	2	0.74	Present	0.91	0.96	0.02	0.02	0.99	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2009	12102	9005	2.96	0.32	3.28	2	0.53	2	0.74	Present	0.91	1.17	0.03	0.02	1.22	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2010	12410	9240	3.04	0.33	3.37	2	0.53	2	0.74	Present	0.91	1.20	0.03	0.02	1.25	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2011	12450	9270	3.05	0.33	3.38	2	0.53	2	0.74	Present	0.91	1.21	0.03	0.02	1.25	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2012	10793	8827	2.68	0.31	2.99	2	0.53	2	0.74	Present	0.91	1.07	0.02	0.02	1.11	2.2
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2008	8567	902	1.25	0.22	1.47	0	1.00	0	1.00	Present	0.91	1.34	0.03	0.02	1.39	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2009	8690	902	1.27	0.22	1.49	0	1.00	0	1.00	Present	0.91	1.35	0.03	0.02	1.41	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2010	8045	902	1.19	0.21	1.40	0	1.00	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2011	8255	902	1.22	0.21	1.43	0	1.00	0	1.00	Present	0.91	1.30	0.03	0.02	1.36	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2012	7630	902	1.14	0.21	1.35	0	1.00	0	1.00	Present	0.91	1.23	0.03	0.02	1.28	1.4
DENALI STREET (TUDOR	34TH AVENUE (DENALI)	2008	13175	2772	2.36	0.29	2.65	2	0.53	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	8.4
DENALI STREET (TUDOR	35th AVENUE (DENALI)	2009	12790	2772	2.31	0.28	2.59	2	0.53	0	1.00	Present	0.91	1.25	0.03	0.02	1.30	8.4
DENALI STREET (TUDOR	36th AVENUE (DENALI)	2010	11928	2772	2.18	0.28	2.46	2	0.53	0	1.00	Present	0.91	1.18	0.03	0.02	1.23	8.4
DENALI STREET (TUDOR	37th AVENUE (DENALI)	2011	12141	2772	2.21	0.28	2.49	2	0.53	0	1.00	Present	0.91	1.20	0.03	0.02	1.25	8.4
DENALI STREET (TUDOR	38th AVENUE (DENALI)	2012	12740	2772	2.30	0.28	2.58	2	0.53	0	1.00	Present	0.91	1.25	0.03	0.02	1.30	8.4
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2008	6870	939	1.06	0.20	1.26	2	0.53	1	0.86	Present	0.91	0.52	0.01	0.01	0.54	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2009	6503	939	1.01	0.20	1.21	2	0.53	1	0.86	Present	0.91	0.50	0.01	0.01	0.52	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2010	6675	939	1.03	0.20	1.23	2	0.53	1	0.86	Present	0.91	0.51	0.01	0.01	0.53	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2011	6780	939	1.05	0.20	1.25	2	0.53	1	0.86	Present	0.91	0.52	0.01	0.01	0.54	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2012	6270	939	0.98	0.20	1.18	2	0.53	1	0.86	Present	0.91	0.49	0.01	0.01	0.51	2.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2008	8567	1420	1.41	0.23	1.64	2	0.53	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2009	8690	1420	1.42	0.23	1.65	2	0.53	0	1.00	Present	0.91	0.80	0.02	0.01	0.83	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2010	8045	1420	1.33	0.23	1.56	2	0.53	0	1.00	Present	0.91	0.75	0.02	0.01	0.78	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2011	8255	1420	1.36	0.23	1.59	2	0.53	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2012	7630	1420	1.28	0.22	1.50	2	0.53	0	1.00	Present	0.91	0.72	0.02	0.01	0.75	3.2
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2008	6228	580	0.86	0.19	1.05	0	1.00	0	1.00	None	1	1.05	0.02	0.02	1.09	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2009	6980	580	0.95	0.19	1.14	0	1.00	0	1.00	None	1	1.14	0.03	0.02	1.19	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2010	7020	580	0.95	0.19	1.15	0	1.00	0	1.00	None	1	1.15	0.03	0.02	1.19	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2011	7600	580	1.02	0.20	1.22	0	1.00	0	1.00	None	1	1.22	0.03	0.02	1.27	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2012	6576	580	0.90	0.19	1.09	0	1.00	0	1.00	None	1	1.09	0.02	0.02	1.14	1
BLACKBERRY STREET ANCHORAGI	DIMOND BOULEVARD	2008	19806	1981	3.04	0.32	3.35	2	0.53	0	1.00	Present	0.91	1.62	0.04	0.03	1.68	4
BLACKBERRY STREET ANCHORAGI	DIMOND BOULEVARD	2009	20835	1981	3.17	0.32	3.49	2	0.53	0	1.00	Present	0.91	1.68	0.04	0.03	1.75	4
BLACKBERRY STREET ANCHORAGI	DIMOND BOULEVARD	2010	19043	1981	2.94	0.31	3.25	2	0.53	0	1.00	Present	0.91	1.57	0.03	0.03	1.63	4
BLACKBERRY STREET ANCHORAGI	DIMOND BOULEVARD	2011	19404	1981	2.99	0.31	3.30	2	0.53	0	1.00	Present	0.91	1.59	0.04	0.03	1.65	4
BLACKBERRY STREET ANCHORAGI	DIMOND BOULEVARD	2012	18950	1981	2.93	0.31	3.24	2	0.53	0	1.00	Present	0.91	1.56	0.03	0.03	1.62	4

APPENDIX B - 22 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2008	13137	1167	1.90	0.26	2.16	2	0.53	0	1.00	Present	0.91	1.04	0.02	0.02	1.08	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2009	14021	1167	2.00	0.26	2.27	2	0.53	0	1.00	Present	0.91	1.09	0.02	0.02	1.14	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2010	10701	1167	1.61	0.24	1.85	2	0.53	0	1.00	Present	0.91	0.89	0.02	0.02	0.93	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2011	14272	1167	2.03	0.27	2.30	2	0.53	0	1.00	Present	0.91	1.11	0.02	0.02	1.15	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2012	13887	1167	1.99	0.26	2.25	2	0.53	0	1.00	Present	0.91	1.09	0.02	0.02	1.13	2.4
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2008	12379	2803	2.25	0.28	2.53	2	0.53	0	1.00	Present	0.91	1.22	0.03	0.02	1.27	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2009	13124	2803	2.36	0.29	2.65	2	0.53	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2010	11714	2803	2.15	0.28	2.43	2	0.53	0	1.00	Present	0.91	1.17	0.03	0.02	1.22	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2011	11885	2803	2.18	0.28	2.46	2	0.53	0	1.00	Present	0.91	1.18	0.03	0.02	1.23	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2012	11959	2803	2.19	0.28	2.47	2	0.53	0	1.00	Present	0.91	1.19	0.03	0.02	1.24	2.2
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2008	9191	3669	1.89	0.26	2.15	1	0.73	0	1.00	Present	0.91	1.43	0.03	0.03	1.49	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2009	9972	4198	2.09	0.28	2.36	1	0.73	0	1.00	Present	0.91	1.57	0.03	0.03	1.63	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2010	9530	4409	2.04	0.27	2.31	1	0.73	0	1.00	Present	0.91	1.53	0.03	0.03	1.59	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2011	10131	4689	2.17	0.28	2.45	1	0.73	0	1.00	Present	0.91	1.63	0.04	0.03	1.70	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2012	10577	4302	2.20	0.28	2.49	1	0.73	0	1.00	Present	0.91	1.65	0.04	0.03	1.72	1
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2008	9191	1537	1.52	0.24	1.76	0	1.00	0	1.00	Present	0.91	1.60	0.04	0.03	1.66	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2009	9972	1537	1.62	0.24	1.87	0	1.00	0	1.00	Present	0.91	1.70	0.04	0.03	1.77	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2010	9530	1537	1.56	0.24	1.80	0	1.00	0	1.00	Present	0.91	1.64	0.04	0.03	1.71	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2011	10131	1537	1.64	0.25	1.89	0	1.00	0	1.00	Present	0.91	1.72	0.04	0.03	1.79	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2012	10577	1537	1.70	0.25	1.95	0	1.00	0	1.00	Present	0.91	1.78	0.04	0.03	1.85	0.8
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2008	23047	3162	3.86	0.35	4.22	2	0.53	0	1.00	Present	0.91	2.03	0.04	0.04	2.11	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2009	19790	3162	3.41	0.33	3.74	2	0.53	0	1.00	Present	0.91	1.81	0.04	0.03	1.88	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2010	23536	3162	3.93	0.35	4.28	2	0.53	0	1.00	Present	0.91	2.07	0.05	0.04	2.15	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2011	21011	3162	3.58	0.34	3.92	2	0.53	0	1.00	Present	0.91	1.89	0.04	0.03	1.97	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2012	19872	3162	3.42	0.33	3.76	2	0.53	0	1.00	Present	0.91	1.81	0.04	0.03	1.88	7
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2008	14883	1519	2.25	0.28	2.53	0	1.00	0	1.00	Present	0.91	2.30	0.05	0.04	2.39	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2009	18407	1519	2.68	0.30	2.97	0	1.00	0	1.00	Present	0.91	2.71	0.06	0.05	2.81	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2010	17728	1519	2.59	0.29	2.89	0	1.00	0	1.00	Present	0.91	2.63	0.06	0.05	2.73	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2011	18378	1519	2.67	0.30	2.97	0	1.00	0	1.00	Present	0.91	2.70	0.06	0.05	2.81	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2012	16850	1519	2.49	0.29	2.78	0	1.00	0	1.00	Present	0.91	2.53	0.06	0.05	2.63	15
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2008	15980	1499	2.37	0.28	2.66	0	1.00	0	1.00	Present	0.91	2.42	0.05	0.04	2.52	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2009	16381	1499	2.42	0.29	2.71	0	1.00	0	1.00	Present	0.91	2.47	0.05	0.04	2.56	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2010	17246	1499	2.53	0.29	2.82	0	1.00	0	1.00	Present	0.91	2.57	0.06	0.05	2.67	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2011	17250	1499	2.53	0.29	2.82	0	1.00	0	1.00	Present	0.91	2.57	0.06	0.05	2.67	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2012	17150	1499	2.52	0.29	2.81	0	1.00	0	1.00	Present	0.91	2.55	0.06	0.05	2.66	8.4
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2008	7863	1570	1.34	0.23	1.57	0	1.00	0	1.00	Present	0.91	1.43	0.03	0.03	1.49	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2009	8640	1570	1.45	0.23	1.68	0	1.00	0	1.00	Present	0.91	1.53	0.03	0.03	1.59	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2010	8415	1570	1.42	0.23	1.65	0	1.00	0	1.00	Present	0.91	1.50	0.03	0.03	1.56	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2011	7676	1570	1.32	0.22	1.54	0	1.00	0	1.00	Present	0.91	1.40	0.03	0.03	1.46	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2012	7973	1570	1.36	0.23	1.59	0	1.00	0	1.00	Present	0.91	1.44	0.03	0.03	1.50	4.2

APPENDIX B - 22 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR

LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2008	24143	1914	3.54	0.34	3.88	2	0.53	0	1.00	Present	0.91	1.87	0.04	0.03	1.94	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2009	22907	1914	3.39	0.33	3.72	2	0.53	0	1.00	Present	0.91	1.79	0.04	0.03	1.87	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2010	22506	1914	3.34	0.33	3.67	2	0.53	0	1.00	Present	0.91	1.77	0.04	0.03	1.84	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2011	20828	1914	3.14	0.32	3.46	2	0.53	0	1.00	Present	0.91	1.67	0.04	0.03	1.73	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2012	20193	1914	3.06	0.32	3.37	2	0.53	0	1.00	Present	0.91	1.63	0.04	0.03	1.69	5
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2008	24143	2485	3.78	0.35	4.13	2	0.53	0	1.00	Present	0.91	1.99	0.04	0.04	2.07	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2009	22907	2485	3.62	0.34	3.96	2	0.53	0	1.00	Present	0.91	1.91	0.04	0.03	1.99	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2010	22506	2485	3.57	0.34	3.91	2	0.53	0	1.00	Present	0.91	1.88	0.04	0.03	1.96	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2011	20828	2485	3.35	0.33	3.68	2	0.53	0	1.00	Present	0.91	1.77	0.04	0.03	1.85	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2012	20193	2485	3.26	0.33	3.59	2	0.53	0	1.00	Present	0.91	1.73	0.04	0.03	1.80	5.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2008	18040	2008	2.82	0.31	3.13	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2009	17994	2008	2.82	0.31	3.12	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2010	18092	2008	2.83	0.31	3.14	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2011	18290	2008	2.85	0.31	3.16	2	0.53	0	1.00	Present	0.91	1.52	0.03	0.03	1.59	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2012	16706	2008	2.65	0.30	2.95	2	0.53	0	1.00	Present	0.91	1.42	0.03	0.03	1.48	4.4
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2008	12130	1064	1.74	0.25	1.99	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.86	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2009	11980	1064	1.72	0.25	1.97	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.85	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2010	12053	1064	1.73	0.25	1.98	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.85	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2011	11880	1064	1.71	0.25	1.96	2	0.53	1	0.86	Present	0.91	0.81	0.02	0.01	0.84	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2012	11740	1064	1.69	0.25	1.94	2	0.53	1	0.86	Present	0.91	0.80	0.02	0.01	0.84	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2008	3552	995	0.62	0.16	0.79	0	1.00	0	1.00	None	1	0.79	0.02	0.01	0.82	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2009	3417	1097	0.62	0.16	0.78	0	1.00	0	1.00	None	1	0.78	0.02	0.01	0.82	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2010	3018	981	0.54	0.16	0.70	0	1.00	0	1.00	None	1	0.70	0.02	0.01	0.73	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2011	3288	980	0.58	0.16	0.74	0	1.00	0	1.00	None	1	0.74	0.02	0.01	0.77	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2012	4853	1068	0.82	0.18	1.01	0	1.00	0	1.00	None	1	1.01	0.02	0.02	1.05	1.6
PARKS HIGHWAY	STANLEY ROAD	2008	19187	959	2.47	0.29	2.75	0	1.00	0	1.00	None	1	2.75	0.06	0.05	2.86	1.4
PARKS HIGHWAY	STANLEY ROAD	2009	19187	959	2.47	0.29	2.75	0	1.00	0	1.00	None	1	2.75	0.06	0.05	2.86	1.4
PARKS HIGHWAY	STANLEY ROAD	2010	19203	959	2.47	0.29	2.76	0	1.00	0	1.00	None	1	2.76	0.06	0.05	2.87	1.4
PARKS HIGHWAY	STANLEY ROAD	2011	18288	959	2.37	0.28	2.65	0	1.00	0	1.00	None	1	2.65	0.06	0.05	2.76	1.4
PARKS HIGHWAY	STANLEY ROAD	2012	18730	959	2.42	0.28	2.70	0	1.00	0	1.00	None	1	2.70	0.06	0.05	2.81	1.4
														Totals=			165.41	430.00
														Calibration Factor=				2.60

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	= N_{bimv} + N_{bisv}		Table 12-24		Table 12-26		Table 12-27	=$N_{spf\ int}$ x CMF_{1i} x CMF_{3i} x CMF_{5i}	=N_{bi} x f_{pedi}	= N_{bi} x f_{bikei}	= N_{bi} + N_{pedi} + N_{bikei}	
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2008	3620	3460	0.87	0.19	1.06	1	0.73	0	1.00	Present	0.91	0.70	0.02	0.01	0.73	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2009	3990	3812	0.96	0.20	1.16	1	0.73	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2010	4090	3910	0.99	0.20	1.19	1	0.73	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2011	4100	3920	0.99	0.20	1.19	1	0.73	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
MILL BAY ROAD LOWER * KODIAK	REZANOF DRIVE * KODIAK NORTH	2012	2768	3880	0.72	0.18	0.89	1	0.73	0	1.00	Present	0.91	0.59	0.01	0.01	0.62	3.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2008	9800	7600	2.39	0.29	2.68	2	0.53	2	0.74	Present	0.91	0.96	0.02	0.02	0.99	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2009	12102	9005	2.96	0.32	3.28	2	0.53	2	0.74	Present	0.91	1.17	0.03	0.02	1.22	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2010	12410	9240	3.04	0.33	3.37	2	0.53	2	0.74	Present	0.91	1.20	0.03	0.02	1.25	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2011	12450	9270	3.05	0.33	3.38	2	0.53	2	0.74	Present	0.91	1.21	0.03	0.02	1.25	2.2
REZANOF DRIVE * KODIAK	MILL BAY ROAD LOWER (THE Y)	2012	10793	8827	2.68	0.31	2.99	2	0.53	2	0.74	Present	0.91	1.07	0.02	0.02	1.11	2.2
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	2008	713	6410	0.27	0.12	0.39	2	0.53	0	1.00	Present	0.91	0.19	0.00	0.00	0.19	1.4
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	2009	713	6800	0.27	0.12	0.39	2	0.53	0	1.00	Present	0.91	0.19	0.00	0.00	0.20	1.4
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	2010	713	6128	0.26	0.12	0.38	2	0.53	0	1.00	Present	0.91	0.19	0.00	0.00	0.19	1.4
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	2011	611	8022	0.25	0.12	0.37	2	0.53	0	1.00	Present	0.91	0.18	0.00	0.00	0.18	1.4
SCOUT LAKE ROAD (EAST)	STERLING HIGHWAY	2012	680	8030	0.27	0.12	0.39	2	0.53	0	1.00	Present	0.91	0.19	0.00	0.00	0.20	1.4
STERLING HIGHWAY	FOREST LANE ROAD * S	2008	11220	300	1.19	0.21	1.40	0	1.00	0	1.00	None	1	1.40	0.03	0.03	1.45	1.8
STERLING HIGHWAY	FOREST LANE ROAD * S	2009	11720	650	1.49	0.23	1.73	0	1.00	0	1.00	None	1	1.73	0.04	0.03	1.80	1.8
STERLING HIGHWAY	FOREST LANE ROAD * S	2010	10344	670	1.36	0.22	1.58	0	1.00	0	1.00	None	1	1.58	0.03	0.03	1.65	1.8
STERLING HIGHWAY	FOREST LANE ROAD * S	2011	10230	650	1.34	0.22	1.56	0	1.00	0	1.00	None	1	1.56	0.03	0.03	1.62	1.8
STERLING HIGHWAY	FOREST LANE ROAD * S	2012	10240	391	1.18	0.21	1.39	0	1.00	0	1.00	None	1	1.39	0.03	0.02	1.44	1.8
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	2008	760	3150	0.24	0.11	0.35	0	1.00	0	1.00	Present	0.91	0.32	0.01	0.01	0.33	0.4
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	2009	1170	3170	0.34	0.13	0.47	0	1.00	0	1.00	Present	0.91	0.42	0.01	0.01	0.44	0.4
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	2010	1200	3457	0.35	0.13	0.48	0	1.00	0	1.00	Present	0.91	0.44	0.01	0.01	0.46	0.4
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	2011	1180	3400	0.34	0.13	0.48	0	1.00	0	1.00	Present	0.91	0.43	0.01	0.01	0.45	0.4
OIL WELL ROAD * NINILCHIK	STERLING HIGHWAY	2012	1353	3270	0.38	0.14	0.52	0	1.00	0	1.00	Present	0.91	0.47	0.01	0.01	0.49	0.4
PIONEER AVENUE * HOM	MAIN STREET * HOMER	2008	7620	2350	1.45	0.23	1.68	2	0.53	0	1.00	Present	0.91	0.81	0.02	0.01	0.84	1.8
PIONEER AVENUE * HOM	MAIN STREET * HOMER	2009	7396	2380	1.42	0.23	1.65	2	0.53	0	1.00	Present	0.91	0.80	0.02	0.01	0.83	1.8
PIONEER AVENUE * HOM	MAIN STREET * HOMER	2010	7460	2135	1.39	0.23	1.62	2	0.53	0	1.00	Present	0.91	0.78	0.02	0.01	0.81	1.8
PIONEER AVENUE * HOM	MAIN STREET * HOMER	2011	7410	2130	1.38	0.23	1.61	2	0.53	0	1.00	Present	0.91	0.78	0.02	0.01	0.81	1.8
PIONEER AVENUE * HOM	MAIN STREET * HOMER	2012	7360	2130	1.37	0.23	1.60	2	0.53	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	1.8
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	2008	2060	2780	0.52	0.16	0.67	2	0.53	0	1.00	Present	0.91	0.32	0.01	0.01	0.34	2.6
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	2009	2110	2850	0.53	0.16	0.69	2	0.53	0	1.00	Present	0.91	0.33	0.01	0.01	0.34	2.6
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	2010	2470	3382	0.63	0.17	0.80	2	0.53	0	1.00	Present	0.91	0.39	0.01	0.01	0.40	2.6
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	2011	2490	3410	0.64	0.17	0.80	2	0.53	0	1.00	Present	0.91	0.39	0.01	0.01	0.40	2.6
REDOUBT AVE (WEST OF	KOBUK STREET * SOLDO	2012	2520	3460	0.64	0.17	0.81	2	0.53	0	1.00	Present	0.91	0.39	0.01	0.01	0.41	2.6
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2008	8567	902	1.25	0.22	1.47	0	1.00	0	1.00	Present	0.91	1.34	0.03	0.02	1.39	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2009	8690	902	1.27	0.22	1.49	0	1.00	0	1.00	Present	0.91	1.35	0.03	0.02	1.41	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2010	8045	902	1.19	0.21	1.40	0	1.00	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2011	8255	902	1.22	0.21	1.43	0	1.00	0	1.00	Present	0.91	1.30	0.03	0.02	1.36	1.4
O'MALLEY ROAD * ANCH	OUR ROAD * ANCHORAGE	2012	7630	902	1.14	0.21	1.35	0	1.00	0	1.00	Present	0.91	1.23	0.03	0.02	1.28	1.4

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
DENALI STREET (TUDOR	34TH AVENUE (DENALI)	2008	13175	2772	2.36	0.29	2.65	2	0.53	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	8.4
DENALI STREET (TUDOR	35th AVENUE (DENALI)	2009	12790	2772	2.31	0.28	2.59	2	0.53	0	1.00	Present	0.91	1.25	0.03	0.02	1.30	8.4
DENALI STREET (TUDOR	36th AVENUE (DENALI)	2010	11928	2772	2.18	0.28	2.46	2	0.53	0	1.00	Present	0.91	1.18	0.03	0.02	1.23	8.4
DENALI STREET (TUDOR	37th AVENUE (DENALI)	2011	12141	2772	2.21	0.28	2.49	2	0.53	0	1.00	Present	0.91	1.20	0.03	0.02	1.25	8.4
DENALI STREET (TUDOR	38th AVENUE (DENALI)	2012	12740	2772	2.30	0.28	2.58	2	0.53	0	1.00	Present	0.91	1.25	0.03	0.02	1.30	8.4
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2008	6870	939	1.06	0.20	1.26	2	0.53	1	0.86	Present	0.91	0.52	0.01	0.01	0.54	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2009	6503	939	1.01	0.20	1.21	2	0.53	1	0.86	Present	0.91	0.50	0.01	0.01	0.52	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2010	6675	939	1.03	0.20	1.23	2	0.53	1	0.86	Present	0.91	0.51	0.01	0.01	0.53	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2011	6780	939	1.05	0.20	1.25	2	0.53	1	0.86	Present	0.91	0.52	0.01	0.01	0.54	2.2
HUFFMAN ROAD * ANCHO	CANGE STREET * ANCHO	2012	6270	939	0.98	0.20	1.18	2	0.53	1	0.86	Present	0.91	0.49	0.01	0.01	0.51	2.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2008	8567	1420	1.41	0.23	1.64	2	0.53	0	1.00	Present	0.91	0.79	0.02	0.01	0.82	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2009	8690	1420	1.42	0.23	1.65	2	0.53	0	1.00	Present	0.91	0.80	0.02	0.01	0.83	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2010	8045	1420	1.33	0.23	1.56	2	0.53	0	1.00	Present	0.91	0.75	0.02	0.01	0.78	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2011	8255	1420	1.36	0.23	1.59	2	0.53	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	3.2
O'MALLEY ROAD	ELMORE ROAD ANCHORAGE	2012	7630	1420	1.28	0.22	1.50	2	0.53	0	1.00	Present	0.91	0.72	0.02	0.01	0.75	3.2
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2008	6228	580	0.86	0.19	1.05	0	1.00	0	1.00	None	1	1.05	0.02	0.02	1.09	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2009	6980	580	0.95	0.19	1.14	0	1.00	0	1.00	None	1	1.14	0.03	0.02	1.19	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2010	7020	580	0.95	0.19	1.15	0	1.00	0	1.00	None	1	1.15	0.03	0.02	1.19	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2011	7600	580	1.02	0.20	1.22	0	1.00	0	1.00	None	1	1.22	0.03	0.02	1.27	1
O'MALLEY ROAD * ANCH	MAIN TREE DRIVE * AN	2012	6576	580	0.90	0.19	1.09	0	1.00	0	1.00	None	1	1.09	0.02	0.02	1.14	1
BLACKBERRY STREET ANCHORAG	DIMOND BOULEVARD	2008	19806	1981	3.04	0.32	3.35	2	0.53	0	1.00	Present	0.91	1.62	0.04	0.03	1.68	4
BLACKBERRY STREET ANCHORAG	DIMOND BOULEVARD	2009	20835	1981	3.17	0.32	3.49	2	0.53	0	1.00	Present	0.91	1.68	0.04	0.03	1.75	4
BLACKBERRY STREET ANCHORAG	DIMOND BOULEVARD	2010	19043	1981	2.94	0.31	3.25	2	0.53	0	1.00	Present	0.91	1.57	0.03	0.03	1.63	4
BLACKBERRY STREET ANCHORAG	DIMOND BOULEVARD	2011	19404	1981	2.99	0.31	3.30	2	0.53	0	1.00	Present	0.91	1.59	0.04	0.03	1.65	4
BLACKBERRY STREET ANCHORAG	DIMOND BOULEVARD	2012	18950	1981	2.93	0.31	3.24	2	0.53	0	1.00	Present	0.91	1.56	0.03	0.03	1.62	4
88TH AVENUE WEST * A	BLACKBERRY STREET (P	2008	4965	3504	1.13	0.21	1.34	0	1.00	0	1.00	Present	0.91	1.22	0.03	0.02	1.27	3.2
88th AVENUE WEST * A	BLACKBERRY STREET (P	2009	4253	3504	0.99	0.20	1.20	0	1.00	0	1.00	Present	0.91	1.09	0.02	0.02	1.13	3.2
88th AVENUE WEST * A	BLACKBERRY STREET (P	2010	3576	3504	0.86	0.19	1.05	0	1.00	0	1.00	Present	0.91	0.96	0.02	0.02	1.00	3.2
88st AVENUE WEST * A	BLACKBERRY STREET (P	2011	3837	3504	0.91	0.20	1.11	0	1.00	0	1.00	Present	0.91	1.01	0.02	0.02	1.05	3.2
88nd AVENUE WEST * A	BLACKBERRY STREET (P	2012	3895	3504	0.92	0.20	1.12	0	1.00	0	1.00	Present	0.91	1.02	0.02	0.02	1.06	3.2
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	2008	2290	1557	0.49	0.15	0.64	0	1.00	0	1.00	Present	0.91	0.58	0.01	0.01	0.60	0.4
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	2009	1896	1557	0.42	0.14	0.56	0	1.00	0	1.00	Present	0.91	0.51	0.01	0.01	0.53	0.4
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	2010	2103	1557	0.45	0.15	0.60	0	1.00	0	1.00	Present	0.91	0.55	0.01	0.01	0.57	0.4
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	2011	2020	1557	0.44	0.14	0.58	0	1.00	0	1.00	Present	0.91	0.53	0.01	0.01	0.55	0.4
STRAWBERRY ROAD * AN	BLACKBERRY STREET (P	2012	2289	1557	0.49	0.15	0.64	0	1.00	0	1.00	Present	0.91	0.58	0.01	0.01	0.60	0.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2008	13137	1167	1.90	0.26	2.16	2	0.53	0	1.00	Present	0.91	1.04	0.02	0.02	1.08	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2009	14021	1167	2.00	0.26	2.27	2	0.53	0	1.00	Present	0.91	1.09	0.02	0.02	1.14	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2010	10701	1167	1.61	0.24	1.85	2	0.53	0	1.00	Present	0.91	0.89	0.02	0.02	0.93	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2011	14272	1167	2.03	0.27	2.30	2	0.53	0	1.00	Present	0.91	1.11	0.02	0.02	1.15	2.4
LAKE OTIS PARKWAY *	SENTRY DRIVE * ANCHO	2012	13887	1167	1.99	0.26	2.25	2	0.53	0	1.00	Present	0.91	1.09	0.02	0.02	1.13	2.4

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	2008	2680	1180	0.52	0.15	0.67	0	1.00	0	1.00	Present	0.91	0.61	0.01	0.01	0.63	0.2
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	2009	2720	2086	0.60	0.16	0.77	0	1.00	0	1.00	Present	0.91	0.70	0.02	0.01	0.73	0.2
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	2010	1458	2428	0.38	0.14	0.51	0	1.00	0	1.00	Present	0.91	0.47	0.01	0.01	0.49	0.2
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	2011	1467	2106	0.36	0.13	0.50	0	1.00	0	1.00	Present	0.91	0.45	0.01	0.01	0.47	0.2
SPRUCE STREET * ANCH	LORE ROAD (ABBOTT LO	2012	1681	2342	0.42	0.14	0.56	0	1.00	0	1.00	Present	0.91	0.51	0.01	0.01	0.53	0.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2008	12379	2803	2.25	0.28	2.53	2	0.53	0	1.00	Present	0.91	1.22	0.03	0.02	1.27	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2009	13124	2803	2.36	0.29	2.65	2	0.53	0	1.00	Present	0.91	1.28	0.03	0.02	1.33	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2010	11714	2803	2.15	0.28	2.43	2	0.53	0	1.00	Present	0.91	1.17	0.03	0.02	1.22	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2011	11885	2803	2.18	0.28	2.46	2	0.53	0	1.00	Present	0.91	1.18	0.03	0.02	1.23	2.2
JEWEL LAKE ROAD * AN	84TH AVENUE (BLACKBE	2012	11959	2803	2.19	0.28	2.47	2	0.53	0	1.00	Present	0.91	1.19	0.03	0.02	1.24	2.2
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2008	9191	3669	1.89	0.26	2.15	1	0.73	0	1.00	Present	0.91	1.43	0.03	0.03	1.49	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2009	9972	4198	2.09	0.28	2.36	1	0.73	0	1.00	Present	0.91	1.57	0.03	0.03	1.63	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2010	9530	4409	2.04	0.27	2.31	1	0.73	0	1.00	Present	0.91	1.53	0.03	0.03	1.59	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2011	10131	4689	2.17	0.28	2.45	1	0.73	0	1.00	Present	0.91	1.63	0.04	0.03	1.70	1
RASPBERRY ROAD * ANC	SAND LAKE ROAD	2012	10577	4302	2.20	0.28	2.49	1	0.73	0	1.00	Present	0.91	1.65	0.04	0.03	1.72	1
88TH AVENUE WEST * A	ARLENE STREET (DIMON	2008	4965	6520	1.32	0.23	1.55	2	0.53	0	1.00	Present	0.91	0.75	0.02	0.01	0.78	2.8
88th AVENUE WEST * A	ARLENE STREET (DIMON	2009	4253	7363	1.19	0.22	1.42	2	0.53	0	1.00	Present	0.91	0.68	0.02	0.01	0.71	2.8
88th AVENUE WEST * A	ARLENE STREET (DIMON	2010	3576	7038	1.02	0.21	1.23	2	0.53	0	1.00	Present	0.91	0.59	0.01	0.01	0.62	2.8
88th AVENUE WEST * A	ARLENE STREET (DIMON	2011	3837	6623	1.07	0.21	1.28	2	0.53	0	1.00	Present	0.91	0.62	0.01	0.01	0.64	2.8
88th AVENUE WEST * A	ARLENE STREET (DIMON	2012	3895	6288	1.07	0.21	1.28	2	0.53	0	1.00	Present	0.91	0.62	0.01	0.01	0.64	2.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2008	9191	1537	1.52	0.24	1.76	0	1.00	0	1.00	Present	0.91	1.60	0.04	0.03	1.66	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2009	9972	1537	1.62	0.24	1.87	0	1.00	0	1.00	Present	0.91	1.70	0.04	0.03	1.77	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2010	9530	1537	1.56	0.24	1.80	0	1.00	0	1.00	Present	0.91	1.64	0.04	0.03	1.71	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2011	10131	1537	1.64	0.25	1.89	0	1.00	0	1.00	Present	0.91	1.72	0.04	0.03	1.79	0.8
RASPBERRY ROAD * ANC	CARAVELLE DRIVE * AN	2012	10577	1537	1.70	0.25	1.95	0	1.00	0	1.00	Present	0.91	1.78	0.04	0.03	1.85	0.8
TUDOR ROAD	LOIS DRIVE ANCHORAG	2008	6462	1843	1.19	0.22	1.41	0	1.00	0	1.00	None	1	1.41	0.03	0.03	1.46	1
TUDOR ROAD	LOIS DRIVE ANCHORAG	2009	6462	1843	1.19	0.22	1.41	0	1.00	0	1.00	None	1	1.41	0.03	0.03	1.46	1
TUDOR ROAD	LOIS DRIVE ANCHORAG	2010	6462	1843	1.19	0.22	1.41	0	1.00	0	1.00	None	1	1.41	0.03	0.03	1.46	1
TUDOR ROAD	LOIS DRIVE ANCHORAG	2011	6462	1843	1.19	0.22	1.41	0	1.00	0	1.00	None	1	1.41	0.03	0.03	1.46	1
TUDOR ROAD	LOIS DRIVE ANCHORAG	2012	6462	1843	1.19	0.22	1.41	0	1.00	0	1.00	None	1	1.41	0.03	0.03	1.46	1
MCCARREY/PINE STREET	6TH AVENUE (BRAGAW)	2008	3990	1667	0.78	0.18	0.96	0	1.00	0	1.00	Present	0.91	0.88	0.02	0.02	0.91	3.2
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	2009	3281	1667	0.67	0.17	0.84	0	1.00	0	1.00	Present	0.91	0.76	0.02	0.01	0.79	3.2
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	2010	4266	1667	0.83	0.19	1.01	0	1.00	0	1.00	Present	0.91	0.92	0.02	0.02	0.96	3.2
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	2011	3649	1667	0.73	0.18	0.90	0	1.00	0	1.00	Present	0.91	0.82	0.02	0.01	0.85	3.2
MCCARREY/PINE STREET	6th AVENUE (BRAGAW)	2012	3400	1667	0.69	0.17	0.86	0	1.00	0	1.00	Present	0.91	0.78	0.02	0.01	0.81	3.2
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2008	23047	3162	3.86	0.35	4.22	2	0.53	0	1.00	Present	0.91	2.03	0.04	0.04	2.11	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2009	19790	3162	3.41	0.33	3.74	2	0.53	0	1.00	Present	0.91	1.81	0.04	0.03	1.88	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2010	23536	3162	3.93	0.35	4.28	2	0.53	0	1.00	Present	0.91	2.07	0.05	0.04	2.15	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2011	21011	3162	3.58	0.34	3.92	2	0.53	0	1.00	Present	0.91	1.89	0.04	0.03	1.97	7
BONIFACE PARKWAY	CARIBOU AVENUE ANCHORAGE	2012	19872	3162	3.42	0.33	3.76	2	0.53	0	1.00	Present	0.91	1.81	0.04	0.03	1.88	7

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2008	14883	1519	2.25	0.28	2.53	0	1.00	0	1.00	Present	0.91	2.30	0.05	0.04	2.39	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2009	18407	1519	2.68	0.30	2.97	0	1.00	0	1.00	Present	0.91	2.71	0.06	0.05	2.81	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2010	17728	1519	2.59	0.29	2.89	0	1.00	0	1.00	Present	0.91	2.63	0.06	0.05	2.73	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2011	18378	1519	2.67	0.30	2.97	0	1.00	0	1.00	Present	0.91	2.70	0.06	0.05	2.81	15
BRAGAW STREET * ANCH	16TH AVENUE (HOYT) *	2012	16850	1519	2.49	0.29	2.78	0	1.00	0	1.00	Present	0.91	2.53	0.06	0.05	2.63	15
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	2008	2614	2917	0.64	0.17	0.80	0	1.00	0	1.00	None	1	0.80	0.02	0.01	0.84	2
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	2009	2921	2917	0.70	0.18	0.87	0	1.00	0	1.00	None	1	0.87	0.02	0.02	0.91	2
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	2010	2870	2917	0.69	0.17	0.86	0	1.00	0	1.00	None	1	0.86	0.02	0.02	0.90	2
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	2011	3000	2917	0.71	0.18	0.89	0	1.00	0	1.00	None	1	0.89	0.02	0.02	0.92	2
BRAGAW STREET ANCHO	THOMPSON ROAD ANCHO	2012	3673	2917	0.84	0.19	1.03	0	1.00	0	1.00	None	1	1.03	0.02	0.02	1.07	2
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2008	15980	1499	2.37	0.28	2.66	0	1.00	0	1.00	Present	0.91	2.42	0.05	0.04	2.52	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2009	16381	1499	2.42	0.29	2.71	0	1.00	0	1.00	Present	0.91	2.47	0.05	0.04	2.56	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2010	17246	1499	2.53	0.29	2.82	0	1.00	0	1.00	Present	0.91	2.57	0.06	0.05	2.67	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2011	17250	1499	2.53	0.29	2.82	0	1.00	0	1.00	Present	0.91	2.57	0.06	0.05	2.67	8.4
36TH AVENUE * ANCHOR	COTTONWOOD STREET *	2012	17150	1499	2.52	0.29	2.81	0	1.00	0	1.00	Present	0.91	2.55	0.06	0.05	2.66	8.4
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	2008	2535	1664	0.54	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.66	1.2
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	2009	2535	1664	0.54	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.66	1.2
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	2010	2535	1664	0.54	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.66	1.2
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	2011	2535	1664	0.54	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.66	1.2
42ND AVENUE * ANCHOR	LAUREL STREET * ANCH	2012	2535	1664	0.54	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.66	1.2
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	2008	3961	2024	0.82	0.19	1.00	0	1.00	0	1.00	None	1	1.00	0.02	0.02	1.04	1.4
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	2009	3961	2024	0.82	0.19	1.00	0	1.00	0	1.00	None	1	1.00	0.02	0.02	1.04	1.4
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	2010	3961	2024	0.82	0.19	1.00	0	1.00	0	1.00	None	1	1.00	0.02	0.02	1.04	1.4
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	2011	3961	2024	0.82	0.19	1.00	0	1.00	0	1.00	None	1	1.00	0.02	0.02	1.04	1.4
42ND AVENUE * ANCHOR	FOLKER STREET * ANCH	2012	3961	2024	0.82	0.19	1.00	0	1.00	0	1.00	None	1	1.00	0.02	0.02	1.04	1.4
42ND AVENUE * ANCHOR	DALE STREET	2008	3166	2757	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	0.8
42ND AVENUE * ANCHOR	DALE STREET	2009	3166	2757	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	0.8
42ND AVENUE * ANCHOR	DALE STREET	2010	3166	2757	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	0.8
42ND AVENUE * ANCHOR	DALE STREET	2011	3166	2757	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	0.8
42ND AVENUE * ANCHOR	DALE STREET	2012	3166	2757	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	0.8
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2008	7863	1570	1.34	0.23	1.57	0	1.00	0	1.00	Present	0.91	1.43	0.03	0.03	1.49	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2009	8640	1570	1.45	0.23	1.68	0	1.00	0	1.00	Present	0.91	1.53	0.03	0.03	1.59	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2010	8415	1570	1.42	0.23	1.65	0	1.00	0	1.00	Present	0.91	1.50	0.03	0.03	1.56	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2011	7676	1570	1.32	0.22	1.54	0	1.00	0	1.00	Present	0.91	1.40	0.03	0.03	1.46	4.2
DENALI STREET ANCHO	40TH AVENUE ANCHORA	2012	7973	1570	1.36	0.23	1.59	0	1.00	0	1.00	Present	0.91	1.44	0.03	0.03	1.50	4.2
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	2008	3140	2047	0.68	0.17	0.85	0	1.00	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	1
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	2009	3425	1553	0.68	0.17	0.85	0	1.00	0	1.00	Present	0.91	0.77	0.02	0.01	0.80	1
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	2010	2388	1920	0.53	0.16	0.69	0	1.00	0	1.00	Present	0.91	0.63	0.01	0.01	0.65	1
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	2011	3461	2067	0.73	0.18	0.91	0	1.00	0	1.00	Present	0.91	0.83	0.02	0.01	0.86	1
C STREET NORTH * ANC	1ST AVENUE (CHRISTEN	2012	3362	2024	0.71	0.18	0.89	0	1.00	0	1.00	Present	0.91	0.81	0.02	0.01	0.84	1

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	2008	4505	2068	0.91	0.19	1.11	2	0.53	0	1.00	Present	0.91	0.53	0.01	0.01	0.55	2.4
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	2009	4881	1338	0.87	0.19	1.06	2	0.53	0	1.00	Present	0.91	0.51	0.01	0.01	0.53	2.4
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	2010	4438	1757	0.86	0.19	1.05	2	0.53	0	1.00	Present	0.91	0.51	0.01	0.01	0.53	2.4
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	2011	4355	1677	0.84	0.19	1.03	2	0.53	0	1.00	Present	0.91	0.50	0.01	0.01	0.52	2.4
POST ROAD * ANCHORAG	1ST AVENUE (INGRA) *	2012	4199	1594	0.81	0.18	0.99	2	0.53	0	1.00	Present	0.91	0.48	0.01	0.01	0.50	2.4
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2008	24143	1914	3.54	0.34	3.88	2	0.53	0	1.00	Present	0.91	1.87	0.04	0.03	1.94	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2009	22907	1914	3.39	0.33	3.72	2	0.53	0	1.00	Present	0.91	1.79	0.04	0.03	1.87	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2010	22506	1914	3.34	0.33	3.67	2	0.53	0	1.00	Present	0.91	1.77	0.04	0.03	1.84	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2011	20828	1914	3.14	0.32	3.46	2	0.53	0	1.00	Present	0.91	1.67	0.04	0.03	1.73	5
DEBARR ROAD * ANCHOR	COLUMBINE STREET	2012	20193	1914	3.06	0.32	3.37	2	0.53	0	1.00	Present	0.91	1.63	0.04	0.03	1.69	5
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2008	24143	2485	3.78	0.35	4.13	2	0.53	0	1.00	Present	0.91	1.99	0.04	0.04	2.07	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2009	22907	2485	3.62	0.34	3.96	2	0.53	0	1.00	Present	0.91	1.91	0.04	0.03	1.99	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2010	22506	2485	3.57	0.34	3.91	2	0.53	0	1.00	Present	0.91	1.88	0.04	0.03	1.96	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2011	20828	2485	3.35	0.33	3.68	2	0.53	0	1.00	Present	0.91	1.77	0.04	0.03	1.85	5.4
DEBARR ROAD * ANCHOR	NORTHWAY DRIVE * ANC	2012	20193	2485	3.26	0.33	3.59	2	0.53	0	1.00	Present	0.91	1.73	0.04	0.03	1.80	5.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2008	18040	2008	2.82	0.31	3.13	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2009	17994	2008	2.82	0.31	3.12	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2010	18092	2008	2.83	0.31	3.14	2	0.53	0	1.00	Present	0.91	1.51	0.03	0.03	1.57	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2011	18290	2008	2.85	0.31	3.16	2	0.53	0	1.00	Present	0.91	1.52	0.03	0.03	1.59	4.4
DEBARR ROAD * ANCHORAGE	PATTERSON STREET S OF DEBARR	2012	16706	2008	2.65	0.30	2.95	2	0.53	0	1.00	Present	0.91	1.42	0.03	0.03	1.48	4.4
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	2008	2960	1133	0.56	0.16	0.71	0	1.00	0	1.00	Present	0.91	0.65	0.01	0.01	0.67	1.2
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	2009	3238	1133	0.60	0.16	0.76	0	1.00	0	1.00	Present	0.91	0.69	0.02	0.01	0.72	1.2
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	2010	2982	1133	0.56	0.16	0.72	0	1.00	0	1.00	Present	0.91	0.65	0.01	0.01	0.68	1.2
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	2011	3559	1133	0.65	0.17	0.81	0	1.00	0	1.00	Present	0.91	0.74	0.02	0.01	0.77	1.2
7TH AVENUE ANCHORAGE	F STREET ANCHORAGE	2012	2905	1133	0.55	0.16	0.70	0	1.00	0	1.00	Present	0.91	0.64	0.01	0.01	0.67	1.2
E STREET ANCHORAGE	10TH AVENUE ANCHORA	2008	3781	2115	0.79	0.18	0.98	0	1.00	0	1.00	Present	0.91	0.89	0.02	0.02	0.93	1.2
E STREET ANCHORAGE	10TH AVENUE ANCHORA	2009	3504	2115	0.75	0.18	0.93	0	1.00	0	1.00	Present	0.91	0.84	0.02	0.02	0.88	1.2
E STREET ANCHORAGE	10TH AVENUE ANCHORA	2010	3823	2115	0.80	0.18	0.99	0	1.00	0	1.00	Present	0.91	0.90	0.02	0.02	0.93	1.2
E STREET ANCHORAGE	10TH AVENUE ANCHORA	2011	3843	2115	0.80	0.19	0.99	0	1.00	0	1.00	Present	0.91	0.90	0.02	0.02	0.94	1.2
E STREET ANCHORAGE	10TH AVENUE ANCHORA	2012	3765	2115	0.79	0.18	0.97	0	1.00	0	1.00	Present	0.91	0.89	0.02	0.02	0.92	1.2
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2008	12130	1064	1.74	0.25	1.99	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.86	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2009	11980	1064	1.72	0.25	1.97	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.85	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2010	12053	1064	1.73	0.25	1.98	2	0.53	1	0.86	Present	0.91	0.82	0.02	0.01	0.85	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2011	11880	1064	1.71	0.25	1.96	2	0.53	1	0.86	Present	0.91	0.81	0.02	0.01	0.84	1.6
NORTHERN LIGHTS BLVD	MCKENZIE DRIVE * ANC	2012	11740	1064	1.69	0.25	1.94	2	0.53	1	0.86	Present	0.91	0.80	0.02	0.01	0.84	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2008	3552	995	0.62	0.16	0.79	0	1.00	0	1.00	None	1	0.79	0.02	0.01	0.82	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2009	3417	1097	0.62	0.16	0.78	0	1.00	0	1.00	None	1	0.78	0.02	0.01	0.82	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2010	3018	981	0.54	0.16	0.70	0	1.00	0	1.00	None	1	0.70	0.02	0.01	0.73	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2011	3288	980	0.58	0.16	0.74	0	1.00	0	1.00	None	1	0.74	0.02	0.01	0.77	1.6
EAGLE RIVER ROAD	EAGLE RIVER LANE * E	2012	4853	1068	0.82	0.18	1.01	0	1.00	0	1.00	None	1	1.01	0.02	0.02	1.05	1.6

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Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	2008	8547	926	1.26	0.22	1.48	2	0.53	0	1.00	Present	0.91	0.71	0.02	0.01	0.74	0.2
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	2009	8500	926	1.25	0.22	1.47	2	0.53	0	1.00	Present	0.91	0.71	0.02	0.01	0.74	0.2
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	2010	8204	926	1.22	0.22	1.43	2	0.53	0	1.00	Present	0.91	0.69	0.02	0.01	0.72	0.2
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	2011	9153	926	1.33	0.22	1.56	2	0.53	0	1.00	Present	0.91	0.75	0.02	0.01	0.78	0.2
OLD GLENN @ PALMER	AIRPORT ROAD * PALME	2012	9591	926	1.39	0.23	1.61	2	0.53	0	1.00	Present	0.91	0.78	0.02	0.01	0.81	0.2
OLD GLENN @ PALMER	VALLEY WAY * PALMER	2008	10783	1241	1.64	0.24	1.88	2	0.53	0	1.00	Present	0.91	0.91	0.02	0.02	0.95	0.6
OLD GLENN @ PALMER	VALLEY WAY * PALMER	2009	10510	1210	1.60	0.24	1.84	2	0.53	0	1.00	Present	0.91	0.89	0.02	0.02	0.92	0.6
OLD GLENN @ PALMER	VALLEY WAY * PALMER	2010	10420	1044	1.53	0.24	1.76	2	0.53	0	1.00	Present	0.91	0.85	0.02	0.02	0.88	0.6
OLD GLENN @ PALMER	VALLEY WAY * PALMER	2011	11637	1040	1.67	0.24	1.92	2	0.53	0	1.00	Present	0.91	0.92	0.02	0.02	0.96	0.6
OLD GLENN @ PALMER	VALLEY WAY * PALMER	2012	1219	1060	0.26	0.12	0.38	2	0.53	0	1.00	Present	0.91	0.18	0.00	0.00	0.19	0.6
PARKS HIGHWAY	STANLEY ROAD	2008	19187	959	2.47	0.29	2.75	0	1.00	0	1.00	None	1	2.75	0.06	0.05	2.86	1.4
PARKS HIGHWAY	STANLEY ROAD	2009	19187	959	2.47	0.29	2.75	0	1.00	0	1.00	None	1	2.75	0.06	0.05	2.86	1.4
PARKS HIGHWAY	STANLEY ROAD	2010	19203	959	2.47	0.29	2.76	0	1.00	0	1.00	None	1	2.76	0.06	0.05	2.87	1.4
PARKS HIGHWAY	STANLEY ROAD	2011	18288	959	2.37	0.28	2.65	0	1.00	0	1.00	None	1	2.65	0.06	0.05	2.76	1.4
PARKS HIGHWAY	STANLEY ROAD	2012	18730	959	2.42	0.28	2.70	0	1.00	0	1.00	None	1	2.70	0.06	0.05	2.81	1.4
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	2008	1735	320	0.26	0.11	0.37	2	0.53	0	1.00	Present	0.91	0.18	0.00	0.00	0.19	0.2
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	2009	1535	285	0.23	0.11	0.34	2	0.53	0	1.00	Present	0.91	0.16	0.00	0.00	0.17	0.2
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	2010	1690	335	0.26	0.11	0.37	2	0.53	0	1.00	Present	0.91	0.18	0.00	0.00	0.19	0.2
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	2011	1535	300	0.23	0.11	0.34	2	0.53	0	1.00	Present	0.91	0.16	0.00	0.00	0.17	0.2
HEALY SPUR ROAD * HEALY	HILLTOP ROAD * HEALY	2012	1585	310	0.24	0.11	0.35	2	0.53	0	1.00	Present	0.91	0.17	0.00	0.00	0.18	0.2
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	2008	3995	695	0.63	0.16	0.79	0	1.00	0	1.00	None	1	0.79	0.02	0.01	0.82	1.2
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	2009	2480	695	0.43	0.14	0.57	0	1.00	0	1.00	None	1	0.57	0.01	0.01	0.59	1.2
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	2010	4030	695	0.63	0.16	0.80	0	1.00	0	1.00	None	1	0.80	0.02	0.01	0.83	1.2
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	2011	3795	695	0.60	0.16	0.76	0	1.00	0	1.00	None	1	0.76	0.02	0.01	0.79	1.2
PARKS HIGHWAY	CRIPPLE CREEK/PARKS RIDGE	2012	4080	695	0.64	0.17	0.80	0	1.00	0	1.00	None	1	0.80	0.02	0.01	0.84	1.2
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	2008	1460	1158	0.31	0.13	0.44	0	1.00	0	1.00	Present	0.91	0.40	0.01	0.01	0.41	1.6
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	2009	1420	1158	0.31	0.12	0.43	0	1.00	0	1.00	Present	0.91	0.39	0.01	0.01	0.41	1.6
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	2010	1430	1170	0.31	0.12	0.43	0	1.00	0	1.00	Present	0.91	0.39	0.01	0.01	0.41	1.6
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	2011	1440	1180	0.31	0.12	0.44	0	1.00	0	1.00	Present	0.91	0.40	0.01	0.01	0.41	1.6
HYER ROAD * WASILLA	EAST BLUE LUPINE DR	2012	1266	1220	0.28	0.12	0.40	0	1.00	0	1.00	Present	0.91	0.37	0.01	0.01	0.38	1.6
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	2008	7820	1474	1.32	0.22	1.54	0	1.00	0	1.00	Present	0.91	1.40	0.03	0.03	1.46	2.2
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	2009	8153	1474	1.36	0.23	1.59	0	1.00	0	1.00	Present	0.91	1.45	0.03	0.03	1.50	2.2
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	2010	8210	1474	1.37	0.23	1.60	0	1.00	0	1.00	Present	0.91	1.45	0.03	0.03	1.51	2.2
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	2011	10649	1474	1.70	0.25	1.94	0	1.00	0	1.00	Present	0.91	1.77	0.04	0.03	1.84	2.2
KNIK-GOOSE BAY ROAD	SUNSET AVENUE * MATS	2012	10973	1474	1.74	0.25	1.99	0	1.00	0	1.00	Present	0.91	1.81	0.04	0.03	1.88	2.2
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	2008	1743	673	0.32	0.12	0.44	0	1.00	0	1.00	None	1	0.44	0.01	0.01	0.46	2.2
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	2009	1760	673	0.32	0.12	0.44	0	1.00	0	1.00	None	1	0.44	0.01	0.01	0.46	2.2
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	2010	1770	673	0.32	0.12	0.44	0	1.00	0	1.00	None	1	0.44	0.01	0.01	0.46	2.2
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	2011	1818	673	0.33	0.13	0.45	0	1.00	0	1.00	None	1	0.45	0.01	0.01	0.47	2.2
HOLLYWOOD ROAD (VINE	JOHNSON ROAD * MAT-S	2012	1900	673	0.34	0.13	0.47	0	1.00	0	1.00	None	1	0.47	0.01	0.01	0.49	2.2

Appendix C - 48 INTERSECTIONS - CALCULATION OF CALIBRATION FACTOR
LOCAL CALIBRATION OF THE HIGHWAY SAFETY MANUAL FOR FOUR-LEG STOP-CONTROLLED INTERSECTIONS IN ALASKA

Road Name	Road Name	Year	$AADT_{MAJ}$	$AADT_{MIN}$	N_{bimv}	N_{bisv}	N_{spfint}	Intx Appr. w/ Left-Turn Lanes	CMF_{1i}	Intx Appr. w/Right-Turn Lane	CMF_{3i}	Lighting Present	CMF_{5i}	N_{bi}	N_{pedi}	N_{bike}	$N_{predicted\ int}$	Obs. Crash Freq.
					=EXP(-8.9 +0.82*LN(AADTmaj) +0.25*LN(AADTmin))	=EXP(-5.33 +0.33*LN(AADTmaj) +0.12*LN(AADTmin))	$= N_{bimv} + N_{bisv}$		Table 12-24		Table 12-26		Table 12-27	$=N_{spf\ int} \times CMF_{1i} \times CMF_{3i} \times CMF_{5i}$	$=N_{bi} \times f_{pedi}$	$= N_{bi} \times f_{bikei}$	$= N_{bi} + N_{pedi} + N_{bikei}$	
																Totals=	265.90	621.00
																Calibration Factor=		2.34